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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/690,507

10/23/2003

Ji Yong Park

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EXAMINER

SONG, MATTHEW J

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

01/26/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/690,507	<b>Applicant(s)</b> PARK ET AL.	
	<b>Examiner</b> MATTHEW J. SONG	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,6,7,10 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,7,10 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Withdrawn Rejections***

1. Applicant's arguments, see the remarks, filed 10/30/2008, with respect to the rejection in view of Jung (US 6,825,493) have been fully considered and are persuasive. The rejection of claims 1, 3, 6, 7, 10, 13 and 14 has been withdrawn. Jung does not teach the claimed overlap in a TFT transistor region. However, upon further consideration, a new ground(s) of rejection is made in view of Im et al (WO 01/18854 A1) in view of Jung (US 6,475,872).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 1, 3, 6, 7, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Im et al (WO 01/18854 A1) in view of Jung (US 6,475,872).

Im et al teaches a method of making a polycrystalline silicon by using sequential lateral solidification process comprising irradiating a portion of an amorphous silicon through a mask using a laser beam to form a first polycrystalline silicon region (pg 7, ln 4-25; pg 10, ln 15-30 and Fig 5A); moving the mask relative to the substrate so that a light transmission region of the mask exposes a portion of the amorphous silicon layer and overlaps a portion of the first polycrystalline region (pg 9, ln 1-30; pg 10, ln 15-30 and Fig 5B, 5C); and irradiating the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region through the mask using a laser beam to form a second polycrystalline silicon region (pg 10, ln 15-30 and Fig 5B, 5C); wherein a width of the overlapped portion of the first polycrystalline silicon is 1  $\mu\text{m}$  (4  $\mu\text{m}$  wide first irradiated portion and translation of 3  $\mu\text{m}$  for an overlap of 1  $\mu\text{m}$ , pg 10, lines 15-30), thus clearly suggests an overlapped portion always greater than 0.5 and always not greater than 2  $\mu\text{m}$ .

Im et al teaches forming a polycrystalline silicon by sequential lateral solidification of an amorphous silicon for a display (pg 2, ln 1-30). Im et al does not teach forming an amorphous silicon layer on a thin film transistor region of a substrate.

In a method of forming a thin film transistor, note entire reference, Jung teaches crystallizing an amorphous silicon layer formed over a substrate using a first sequential lateral solidification laser annealing technique to form a polysilicon layer to manufacture a thin film transistor for use in a liquid crystal display device (abstract).

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It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Im et al by forming an amorphous silicon layer on a substrate for a thin film transistor, as taught by Jung, to form a useful liquid crystal display device.

The combination of Im et al and Jung does not teach the average width of the polycrystalline silicon grains of the second polycrystalline silicon region measured perpendicularly to the width of the overlapped portion of the first polycrystalline silicon region is greater than approximately 0.2  $\mu\text{m}$  and not greater than approximately 0.6  $\mu\text{m}$  and decreases as the width of the overlapped portion of the first polycrystalline silicon region decreases. The combination of Im et al and Jung teaches an overlapped portion of 1  $\mu\text{m}$ , which applicant teaches produces grain widths within the claimed range and overlapping more than 0.5  $\mu\text{m}$  produces average grain widths of 0.2  $\mu\text{m}$  or more, note applicant's Figure 3 and paragraph [0031]; therefore the claimed grain widths are expected.

Referring to claims 3, 10, the combination of Im et al and Jung teaches moving the mask and SLS ('854 pg 2, ln 1-30 and pg 9, ln 1-10).

Referring to claims 6-7, the combination of Im et al and Jung teaches a mask with a melted portion of 4  $\mu\text{m}$  (light transmission region) which are spaced by 2  $\mu\text{m}$  (light non-transmission region) ('854 pg 10, ln 15-31 and Fig 4A, 5A), thus the transmission region is 2  $\mu\text{m}$  larger than the non-transmission region.

Referring to claim 13, see the remarks for claims 1, 3, 6, 7 and 10 above.

### ***Response to Arguments***

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4. Applicant's arguments with respect to claims 1, 3, 6, 7, 10 and 13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. SONG whose telephone number is (571)272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew J Song  
Examiner  
Art Unit 1792

MJS  
January 19, 2009

/Robert M Kunemund/  
Primary Examiner, Art Unit 1792